

NOVUS

INSTALLATION GUIDE

Version 1.01
English

EN 101.00.NVS07_D1/NVS07_D1K V1.01A

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Safety instructions

Observe the following instructions to use the product safely and prevent any risk of injury or property damage.

Warning

Noncompliance with instructions can lead to serious injury or death.

Installation

Do not install the product in a location with direct sunlight, moisture, dust, or soot.

- Fire or electric shock may occur.

Do not install the product in a location with heat from an electric heater.

- Fire or electric shock may occur due to overheating.

Install the product in a dry location.

- Otherwise, product damage or electric shock may occur due to moisture.

Only qualified technical personnel should install, service, or repair the product.

- Fire, electric shock, or personal injury may occur.
- Damage caused by unqualified personnel will void the product warranty. Product repair costs will be quoted based on diagnosis and replacement part pricing.

Operation

Do not allow liquids such as water, beverages, or chemicals to get inside the product.

- Fire, electric shock, or product damage may occur.

Caution

Noncompliance with product instructions could lead to minor injury or product damage.

Installation

Do not install the power supply cable in a location that creates a trip hazard to people walking by.

- Product damage or physical injury may occur.

Use only Suprema-approved adapters, batteries, and cables.

- If the proper power is not used, the product may not operate normally.

Operation

Do not drop the product or otherwise apply force to the to the product housing.

- Product failure may occur.

Do not press the buttons on the product forcibly or use a sharp tool on either the touch screen or the physical keys.

- Product failure may occur.

When cleaning the product, wipe the product with a soft, dry cloth.

Do not use harsh cleaning agents.

- These may cause product failure.

NOVUS uses capacitive buttons and screen. If the environment is moist from wet weather or the product surface is smeared with a lot of water, wipe off the product with a dry towel before using it.

RTC battery

Replacing the battery with an incorrect type of battery may cause explosion.

Discard the battery according to the appropriate regional or international waste regulations.

Introduction

Suprema NOVUS is a multimedia workstation designed to support any Time and Attendance or Workforce Management application.

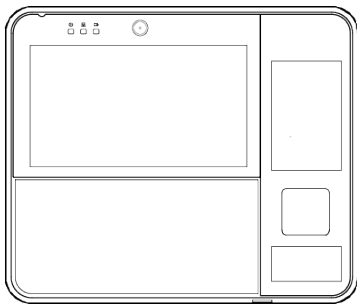
NOVUS provides an up-to-date development, feature-rich environment that allows partners and integrators to integrate and extend the functionalities of their existing applications using the powerful integrated capabilities of the system. Use the SVP (Suprema Versatile Platform) Android SDK, partners and integrators can apply the advanced features and high performance of NOVUS to their existing or new applications.

You can view the SVP Android SDK at <http://kb.supremainc.com/svpsdk>.

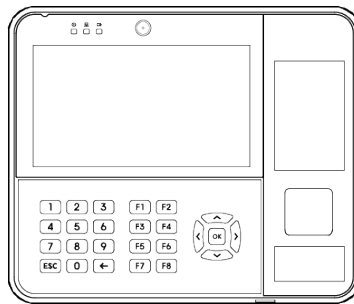
Partners and integrators can use credentials such as fingerprints, RFID cards, magnetic stripe cards, and PIN entry by selecting the options they need. NOVUS also offers a variety of options such as Wi-Fi, GPS, and 4G Cellular modem.

Components

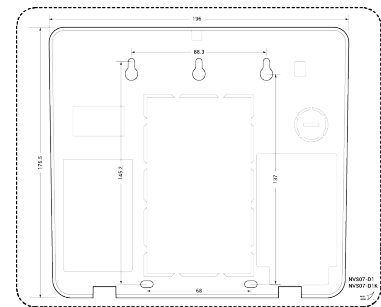
Basic Components



NOVUS (NVS07-D1)



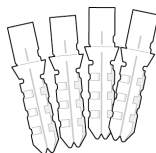
NOVUS (NVS07-D1K)



Drilling Template



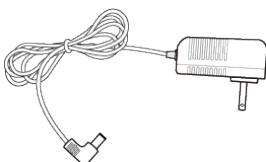
Fixing Screw x4



PVC Anchor x4



Key x2



Power Adapter



Open Source Software
Guide



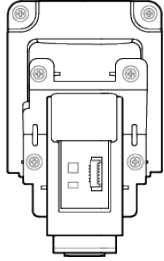
Quick Guide

NOTE

- Component use may vary according to the requirements of the installation environment.
- You can choose NOVUS either NVS07-D1 or NVS07-D1K.
- If installed, the swipe reader option is mounted on the right side of the NOVUS housing. The installer should allow for access to the swipe reader by end-users in choosing the site installation location.

Optional Components

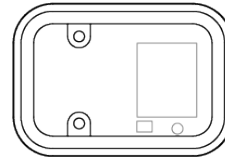
You can assemble the various options you need into NOVUS. For more information on how to install each option, refer to **Installing the Optional Part** in this guide.



Fingerprint Sensor

Includes

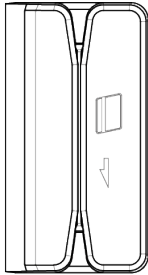
- Fingerprint Sensor
- Cable
- FCC
- Bracket
- M3 Screw x 6



RFID Module

Includes

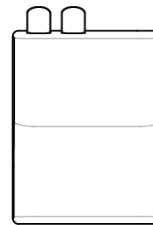
- RFID Module
- Cable
- M3 Screw x 2



Magnetic Swipe Reader

Includes

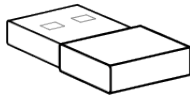
- Magnetic Swipe Reader
- Cable
- Cover
- M3 Screw x 2



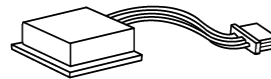
Cellular Modem

Includes

- Modem
- Modem Antenna Cable
- USB cable for Modem data
- Bracket
- M3 Screw x 1



Wi-Fi Dongle



GPS Module

Includes

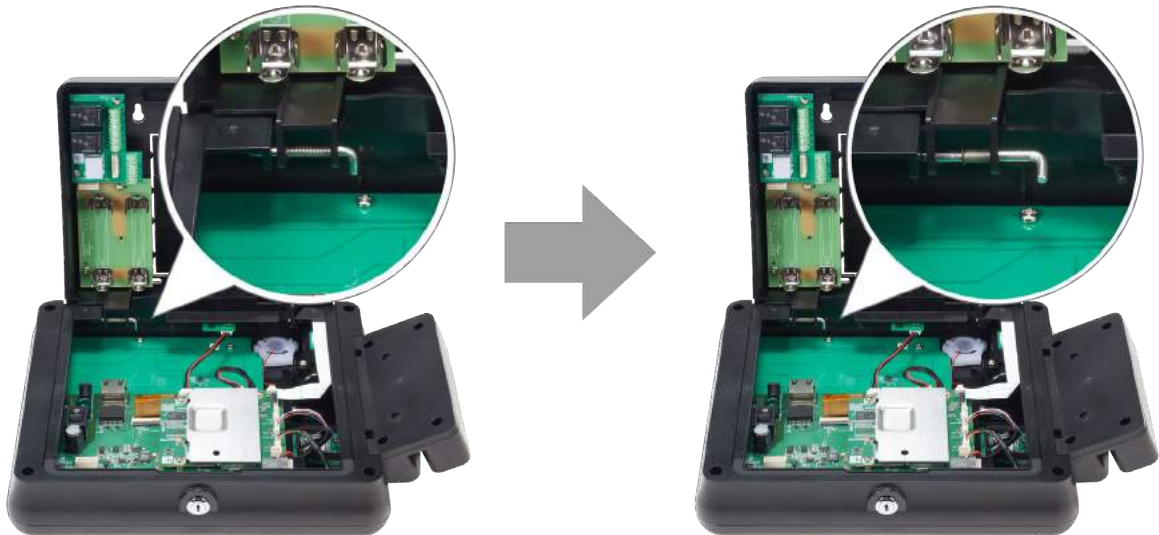
- GPS Module
- Cable

Disassembling the device housing

Disassembling the rear cover

To assemble or disassemble some optional parts and connect cables, you need to separate the rear cover.

- 1** Unlock the device with the key and open the rear cover of the device.
- 2** Unplug one side of the cable and strap that are connected to both the rear cover and the housing side.
- 3** Pull out the latch of the left side and disassemble the rear cover from the housing.



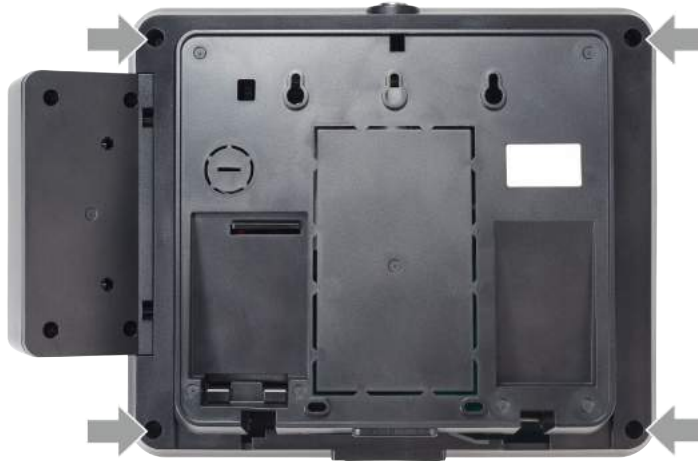
- 4** Pull out the latch of the right side and disassemble the rear cover from the housing completely.



Disassembling the housing

To assemble some optional parts, you need to separate the housing.

- 1 Unplug one side of the cable that is connected to both the front and back of the housing. If a magnetic swipe reader is mounted on the device, you need to unplug the MSR module cable.
- 2 Loosen the four screws on the back of the housing.

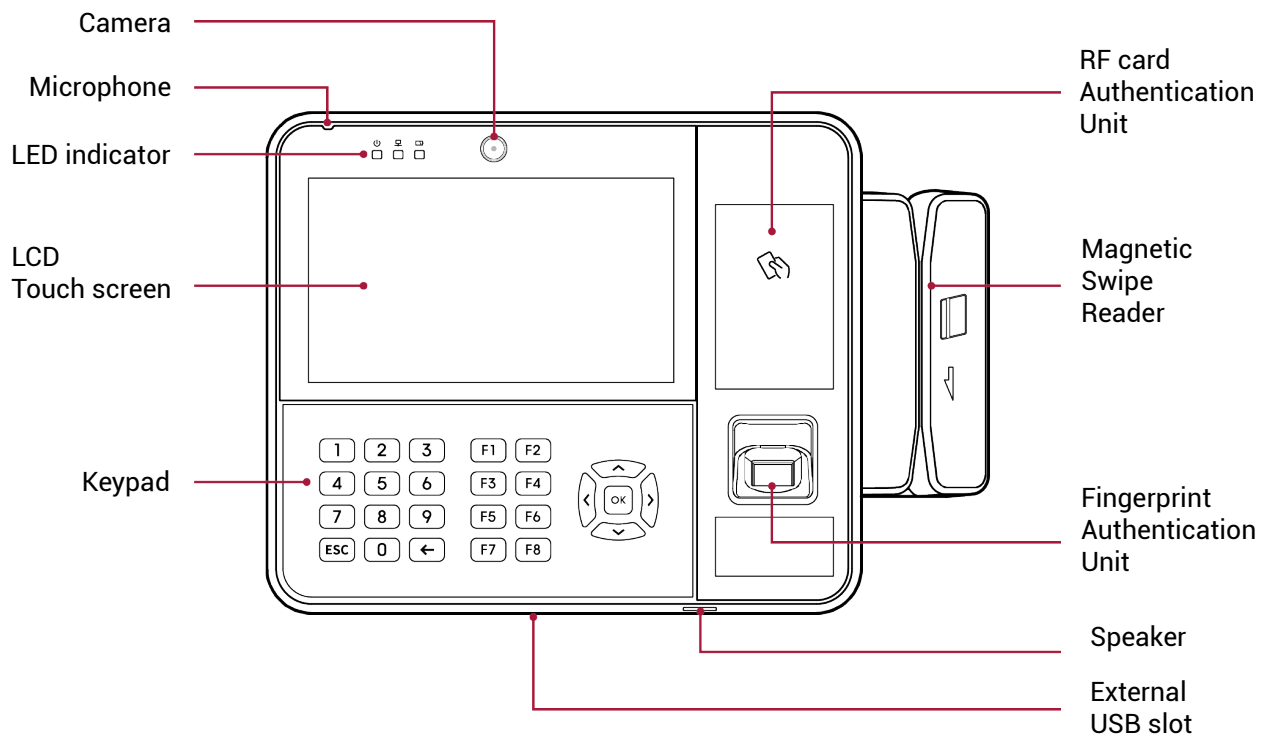


- 3 Disassemble the front and back of the housing.



Name and function of each part

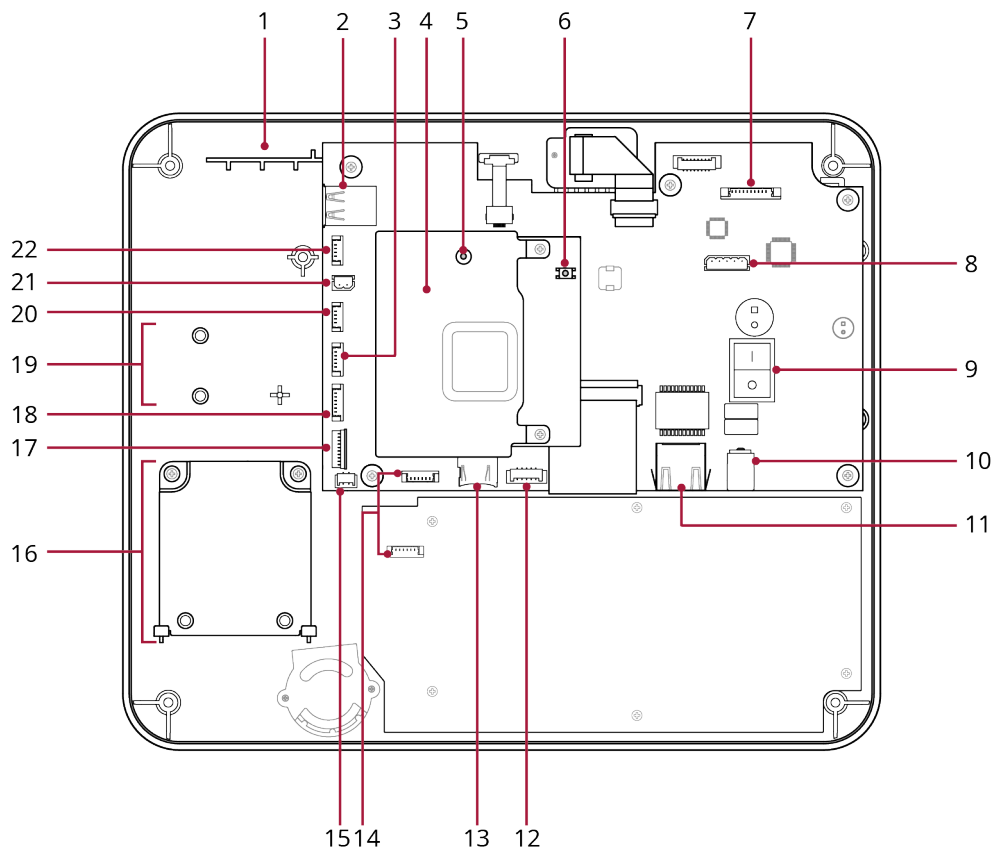
Front



Name	Description
Camera	Captures actual images.
Microphone	Delivers the voice of the user when using some application such as Phone, Sound Recorder, etc.
LED Indicator	Indicates the operational status of the device with the color of the LED. ⏻ : Power 🌐: Network Connection 🔋: Battery Power
RF card Authentication Unit	Location to scan the card for the authentication.
LCD Touch screen	Provides UI for operation.
Magnetic Swipe Reader	Part to swipe the magnetic card for the authentication.
Keypad	0 to 9: Used for entering a number or letter. ESC: Used to cancel an operation. ←: Used for moving to the previous screen or canceling input. F1 to F8: Assign a Time and Attendance or Workforce Management features. OK: Used for selecting and setting an item. <, ^, >, v: Used for moving to the desired item.
Fingerprint Authentication Unit	Fingerprint placement location for authentication.
Speaker	Delivers sound.
External USB slot	External Host USB port for NOVUS-capable functions.

Name of each part

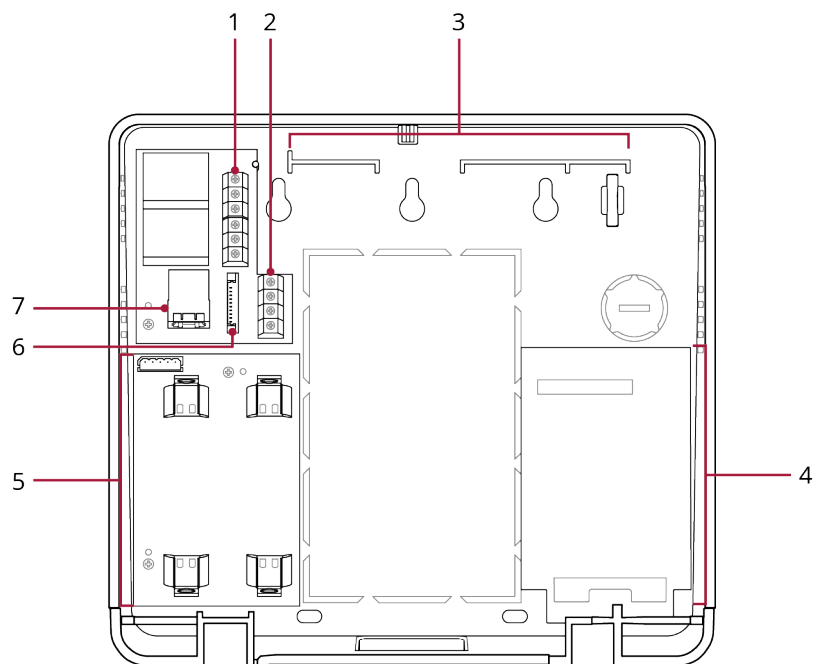
Housing



No.	Name
1	GPS Module Adhesion Area
2	Internal USB Slot for Wi-Fi Dongle and Modem data connection
3	MSR Module Cable Connector
4	Heat Sink
5	Reset Button
6	FW Download Button
7	IO(Relay/Wiegand/RS-232) Board Cable Connector
8	Battery Interface Connector
9	PoE Switch
10	Power Connector
11	Ethernet/PoE Cable Port
12	External USB Cable Connector
13	SD Card Slot

14	Keyboard Cable Connector
15	Speaker Cable Connector
16	Fingerprint Sensor Mounting Area
17	Fingerprint FFC Connector
18	Fingerprint Cable Connector
19	RFID Module Mounting Area
20	RFID Module Cable Connector
21	Modem Power Cable Connector
22	GPS Module Connector

Rear Cover

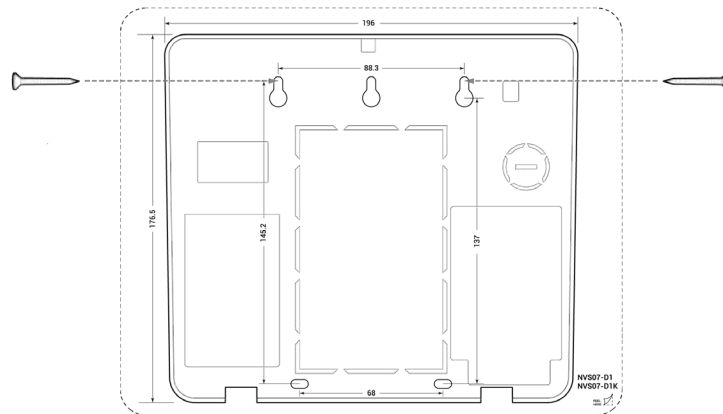


No.	Name
1	Relay Connector
2	Wiegand Connector
3	Modem Antenna Adhesion Area
4	Modem Mounting Area
5	Battery System
6	IO(Relay/Wiegand/RS-232) Board Cable Connector
7	RS-232 Port

Installation

Fixing the device

- 1 Disassemble the housing and the rear cover of the NOVUS by referring to [Disassembling the device housing](#).
- 2 Determine the correct position to install the NOVUS using the provided drilling template.
- 3 Screw the two fixing screws first at the upper screw position of the drilling template.



- 4 Mount the rear cover on the screws fixed to the wall.

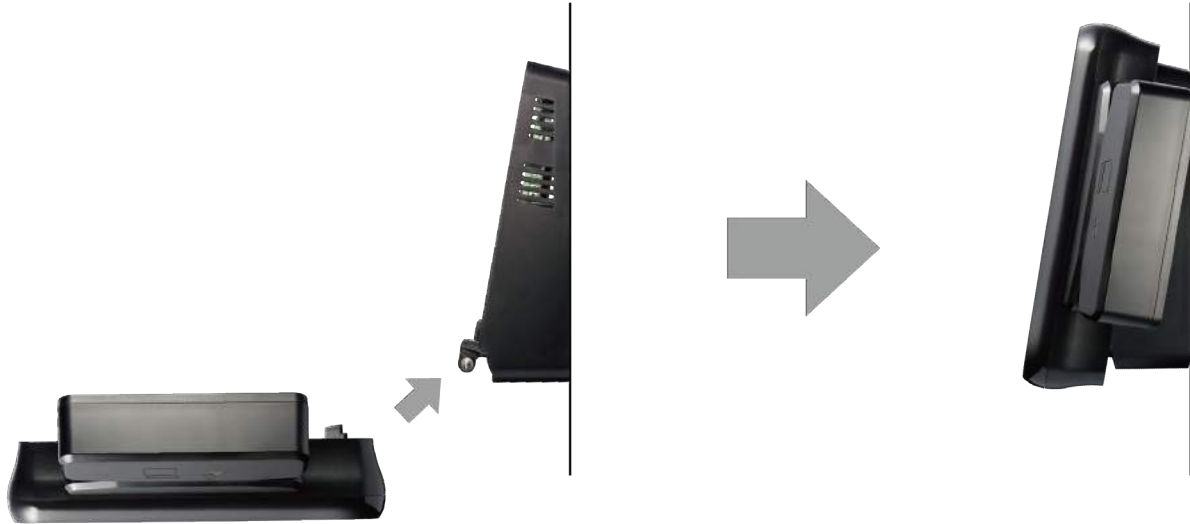


- 5 Fix the rear cover firmly using the two fixing screws at the lower part.



NOTE

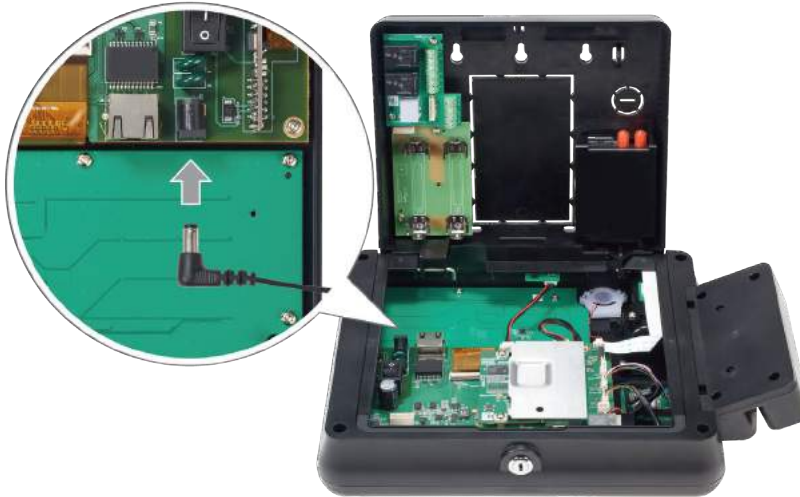
- If installing NOVUS on a concrete wall, drill holes, insert PVC anchors, and attach them with fixing screws.
- If you use the RFID option, to avoid RF interference, a minimum separation distance must be maintained. The minimum separation distance of NOVUS is 10 cm from the horizontal plane and 10 cm vertically.

6 Install the housing onto the rear cover.

Installing the basic part

Power supply

- 1 Unlock the device with the key and open the rear cover of the device.
- 2 Connect the power cable to the Power Connector.



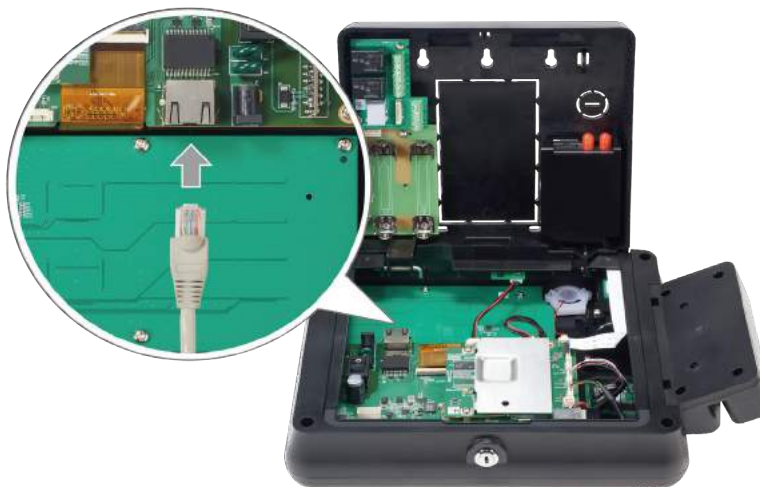
NOTE

- Use a power supply adaptor of DC 12 V with a minimum of 2,140 mA which has obtained the approval of IEC/EN 60950-1. If you wish to connect and use another device to the power supply adaptor, you should use an adaptor with a current capacity which is the same or larger than the total power consumption required for the terminal and another device.

Ethernet / PoE (Power over Ethernet)

You can connect the Ethernet cable directly to the PC or by using the hub.

- 1 Unlock the device with the key and open the rear cover of the device.
- 2 Connect the Ethernet cable to the Ethernet/PoE port.



NOTE

- You can connect the product to a hub using a general type CAT-5 cable.
- NOVUS has an automatic MDI/MDIX function so that it can be connected to a PC directly using a normal straight type CAT-5 cable or a cross cable.
- To supply power through an Ethernet cable, turn on the PoE power by pressing the PoE switch.

Battery

The backup battery can be used to prevent power failure.

- 1 Unlock the device with the key and open the rear cover of the device.
- 2 Mount the batteries into the battery holder. Make sure to observe the correct battery polarity when installing.



- 3 Connect the battery cable to the battery connector on the battery board and the main board.

NOTE

- When installing batteries with DC or POE power supplied, NOVUS may take up to a few minutes to detect batteries for accurately and safely charge. We recommend to powering off the device when mounting the batteries.
- Use only the specified batteries (3,400 mAh) with this device.
- Make sure the plus and minus poles are correctly oriented.
- The batteries are sold separately.
- If both the power supply and the battery are connected to the device, the battery will be charged. When the battery is charging,  is displayed on the screen.

Relay

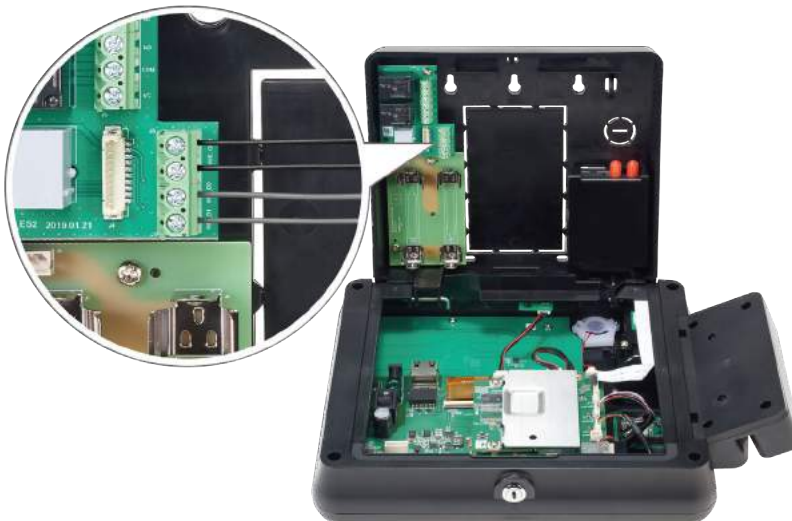
You can control the door by connecting the relay to the NOVUS. Use the SVP Android SDK, you can apply the feature to control the relay to your application.



NOTE

- Relay cable is sold separately.
- You can view the SVP Android SDK at <http://kb.supremainc.com/svpsdk>.

Wiegand



NOTE

- Wiegand cable is sold separately.

Installing the Optional Part

You can assemble the various options you need into NOVUS. This section describes how to mount each option to NOVUS.

NOTE

- Before installing the optional parts, turn off the power and PoE on the device, and remove the batteries.
- To more information on optional parts supported by NOVUS and how to purchase them, please visit <https://support.supremainc.com> and contact to Suprema Tech Team.

Fingerprint Sensor

- 1** Disassemble the front and back of the housing by referring to [Disassembling the housing](#).
- 2** Loosen the two screws on the cover of the fingerprint sensor mounting area and then disassemble the cover.



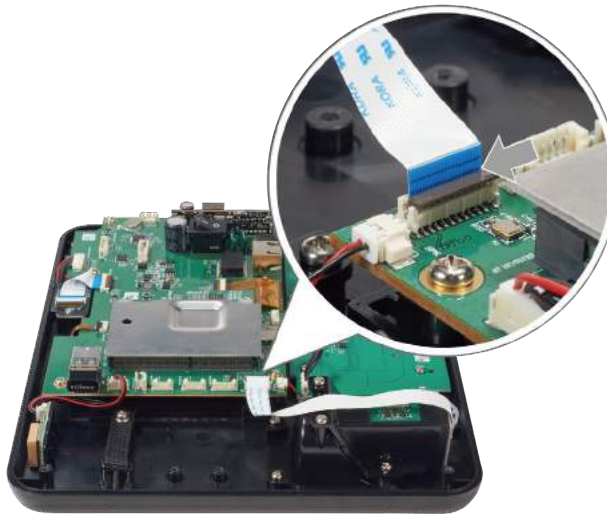
- 3** Mount the bracket with the fingerprint sensor to the housing.



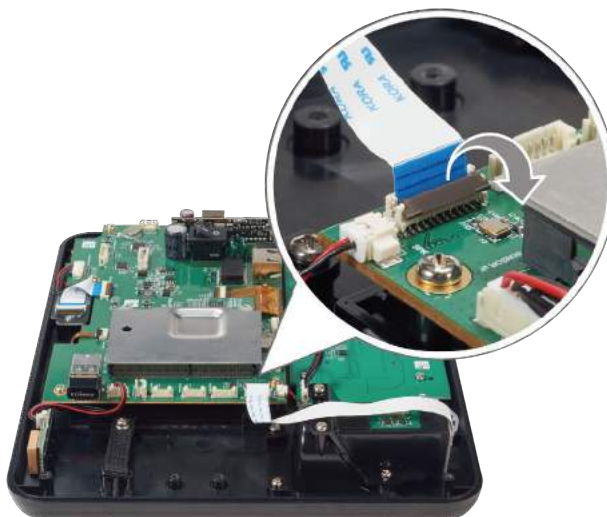
- 4** Fix the bracket firmly at the housing using the four screws.



- 5** Hold the FCC with the blue side up connect it so that the outer dotted outline contacts the holder of the FCC connector.



- 6** Close the holder of the FCC connector to lock the cable in place.



- 7** Connect the fingerprint cable to the fingerprint cable connector.

NOTE

- For more information on how to enroll the fingerprints, please refer to [How to enroll a fingerprint correctly](#).

RFID Module

- 1 Disassemble the front and back of the housing by referring to [Disassembling the housing](#).
- 2 Place the RFID module on the RFID module mounting area.



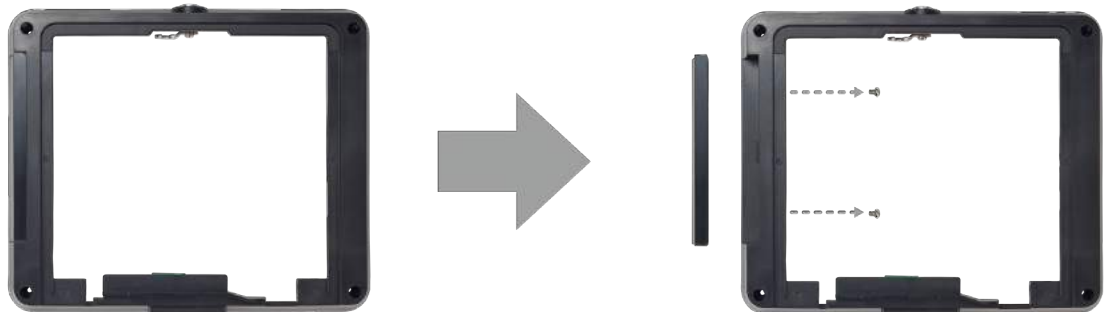
- 3 Fix the RFID module firmly at the housing using the two screws.



- 4 Connect the RFID cable to the RFID module cable connector.

MSR (Magnetic Swipe Reader)

- 1 Disassemble the front and back of the housing by referring to [Disassembling the housing](#).
- 2 Loosen the two screws on the inside of the housing side and disassemble the cover.



- 3 Insert the MSR module cable into the hole in the housing side and mount the reader on the housing.



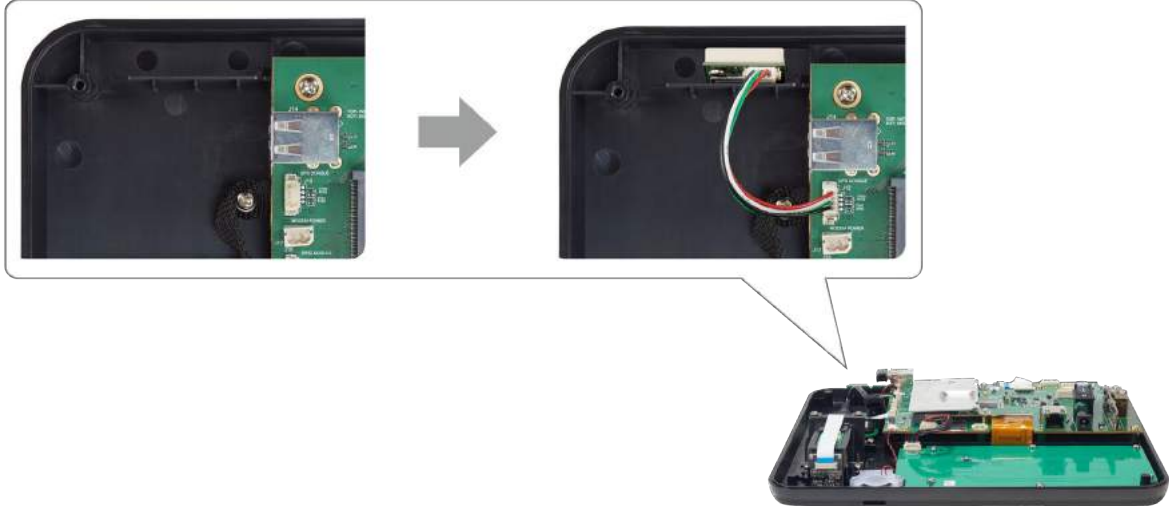
- 4 Fix the magnetic swipe reader firmly at the housing using the two screws.



- 5 Connect the MSR module cable to the MSR module cable connector.

GPS

- 1 Disassemble the front and back of the housing by referring to [Disassembling the housing](#).
- 2 Attach the GPS module to the GPS module adhesion area using double-sided tape.



- 3 Connect the GPS module cable to the GPS module cable connector.

Wireless Ethernet

- 1 Unlock the device with the key and open the rear cover of the device.
- 2 Plug the WiFi Dongle in to the top of the internal USB slot.



Cellular Modem

- 1 Unlock the device with the key and open the rear cover of the device.
- 2 Insert the cellular modem into the modem bracket from the top first and attach it using a double sided tape.



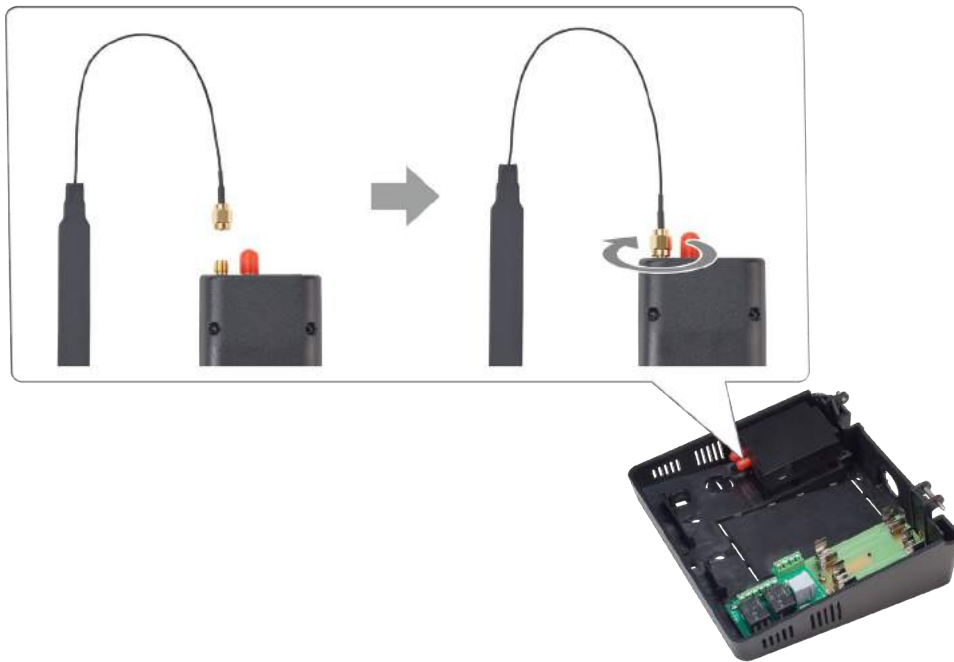
- 3 Mount the lower part of the bracket into the modem mounting area of the rear cover and mount the upper part.



- 4 Fix the modem bracket firmly at the rear cover using a screw.



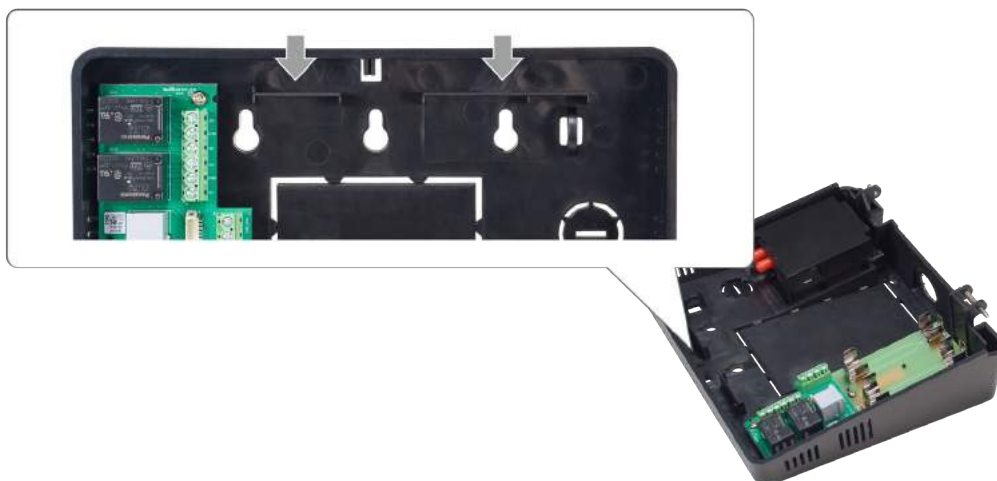
5 Connect the modem antenna to the cellular modem.



NOTE

- Connect the modem antenna to the  side of the antenna connector on the cellular modem.

6 Attach the modem antenna to the modem antenna adhesion area. The internal antenna may be omitted if the site requires use of a remote antenna to capture signal. The remote antenna shall provide a connector suitable for use with the internal cellular modem, and be of the correct impedance.



7 Connect the modem cable to the modem power cable connector on the housing.

8 Plug the USB cable for Modem data into the bottom of the internal USB slot.

Installing the Application

The Time and Attendance or Workforce Management applications can be installed on NOVUS via USB memory device.

NOTE

- You can use the SVP (Suprema Versatile Platform) Android SDK to integrate the features of NOVUS to your applications. You can view the SVP Android SDK at <http://kb.supremainc.com/svpsdk>.

- 1 Save the .apk file of the Time and Attendance or Workforce Management application to a USB memory device.
- 2 Insert the USB memory device into the external USB port.
- 3 Swipe the screen upwards and then tap **Files** > .
- 4 Select the USB memory device.
- 5 Select the .apk file of the application to install.
- 6 Read the pop up message and tap **CONTINUE**.
- 7 Tap **INSTALL**.
- 8 Tap **DONE** to finish the installation. Tap **OPEN** to run the application.

Uninstalling the Application

You can uninstall the application installed on NOVUS.

- 1 Swipe a screen upwards.
- 2 Tap and hold the application to uninstall and then tap **App info**.
- 3 Tap **UNINSTALL** > **OK**.

Upgrading the Application

You can upgrade the version of the application.

- 1 Save the .apk file of the application which is upgraded to a USB memory device.
- 2 Insert the USB memory device into the external USB port.
- 3 Swipe the screen upwards and then tap **Files** > .
- 4 Select the USB memory device.
- 5 Select the .apk file of the application which is upgraded.
- 6 Read the pop up message and tap **CONTINUE**.
- 7 Tap **INSTALL**.
- 8 Tap **DONE** to finish the installation. Tap **OPEN** to run the application.

Product specifications

Basic Device

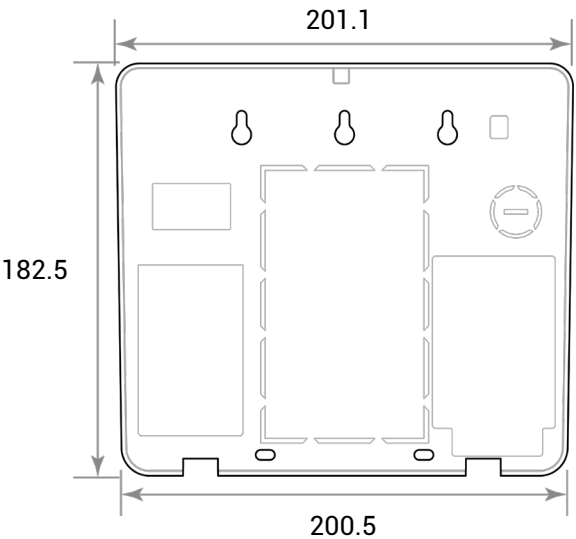
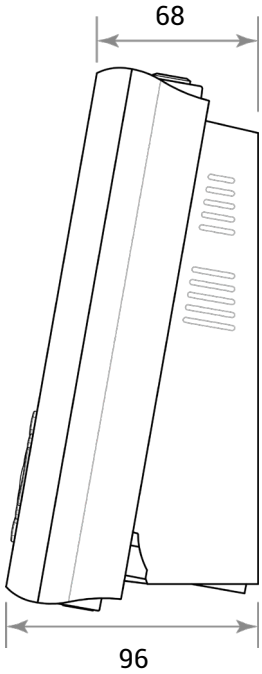
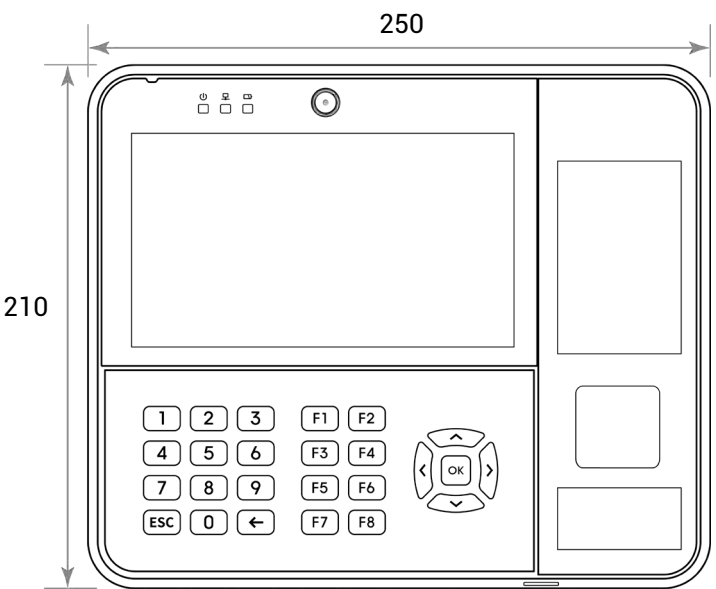
Category	Feature	Specification
General	CPU	1.0 GHz Quad-core
	Memory	16 GB eMMC
	LCD type	7.0" Touchscreen
	LCD resolution	1024 x 600 pixels
	LED	Multiple colors
	Sound	Max 1W Loudspeaker
	Operating temperature	0°C ~ 50°C
	Storage temperature	-20°C ~ 70°C
	Operating humidity	0% ~ 80%, non-condensing
	Storage humidity	0% ~ 90%, non-condensing
	Camera type	CMOS 1M pixels
	Camera resolution	1280 x 720 pixels
	Camera angle	Diagonal 122°, Horizontal 64.7°, Vertical 103.3°
	Dimension (W x H x D)	210 mm x 250 mm x 96 mm
	Weight	- NVS07-D1: 1,189 g - NVS07-D1K: 1,235 g
	Certificates	CE, FCC, RoHS, REACH, WEEE
Capacity	Max. User (1:1)	50,000
	Max. User (1:N)	20,000
	Max. Template (1:1)	100,000
		* Two templates per finger
	Max. Template (1:N)	40,000
Interface		* Two templates per finger
	Ethernet	Supported (10/100 Mbps, auto MDI/MDI-X)
	PoE+	Supported (IEEE 802.3at compliant)
	RS-232	Supported (RXD, TXD, CTS, RTS)
	Wiegand	1ch Input
	Relay	2 Relays
	USB	USB 2.0 (Host)
Electrical	SD card	Supported
	Power	- Voltage: DC 12 V - Current: Max.2,140 mA (Full option)
	Wiegand input VIH	- Max. 5V - Min. 3V
	Wiegand input VIL	Max. 1V
	Wiegand input Pull-up resistor	Internally pulled up with 4.7 kΩ
	Relay	- Voltage: Max. 100 VDC / 250 VAC - Current: Max. 5 A (DC) / 6 A (AC)

Optional Parts

Category	Specification
Fingerprint	• Sensor: Optical sensor (OP6) • Template: SUPREMA / ISO 19794-2 / ANSI 378
RFID	• R1: 125kHz(43.2 dBuV/m)EM, & 13.56MHz(44.70 dBuV/m) MIFARE, MIFARE Plus, DESFire/EV1, FeliCa, HID iCLASS SE/SR/Seos (UID Only), Legic Advant (UID Only) • R2: 125kHz EM, HID Prox & 13.56MHz MIFARE, MIFARE Plus, DESFire/EV1, FeliCa, HID iCLASS SE/SR/Seos, Legic Advant (UID Only) • R3: 125kHz EM & 13.56MHz MIFARE, MIFARE Plus, DESFire/EV1, Legic Advant/Prime (Planned)
MSR	Selectable
Cellular Modem	Selectable
GPS	GNSS 1 559 ~ 1 610 MHz
Wi-Fi	Selectable
Battery	• Voltage: 7.4 V (Max. 8.4 V) • Capacity: 3,400 mAh

Dimensions

(Unit: mm)



FCC compliance information

FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Statement

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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- NFC Frequency: 13.56 MHz
- RFID Frequency: 13.56 MHz + 125 kHz

For more information, contact us at the following contact information.

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Appendices

How to enroll a fingerprint correctly

In order to improve the fingerprint authentication rate, enroll the fingerprint correctly. NOVUS can recognize a fingerprint even if the angle and position of a user's fingerprint input change. If you enroll a fingerprint with attention to the following matters, the authentication rate can be improved.

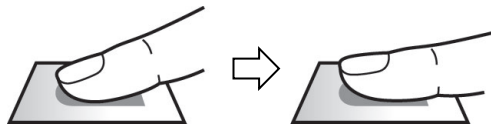
Selecting a finger for fingerprint input

- In preparation for a situation in which the fingerprint of a specific finger cannot be used, for example if the user is lifting a load with one hand or a finger gets hurt, up to 10 fingerprints for each user can be enrolled.
- In the case of a user whose fingerprint cannot be recognized well, the authentication rate can be improved by enrolling the same finger twice repeatedly.
- If a finger has a cut or the fingerprint is blurry, select another finger for the fingerprint.
- It is recommended to use the index finger or the middle finger when scanning the fingerprint. The authentication rate can be reduced if it is difficult to place another finger at the center of fingerprint sensor accurately.



Fingerprint enroll method

- 1 When a message saying "Scan the fingerprint." is displayed on the LCD screen for enrolling the fingerprint, place the finger with the fingerprint you wish to enroll on the fingerprint authentication unit and press the finger gently for better authentication.



- 2 When the re-input screen is displayed after a beep sound, scan the fingerprint of the enrolled finger again (scan the fingerprint of a finger to be enrolled twice).

NOTE

Cautions for enrolling a fingerprint

When a fingerprint is recognized, it is compared with the initially registered fingerprint, so the initial fingerprint enroll is the most important. Pay attention to the following matters when enrolling the fingerprint.

- Place the finger deep enough to contact with the sensor completely.
- Place the center of the fingerprint in the center of the sensor.
- If a finger has a cut or the fingerprint is blurry, select another finger for the fingerprint.
- Scan the fingerprint correctly without moving according to the instruction on the screen.
- If you make the finger upright so that the contact area with the sensor is decreased or the angle of finger is warped, fingerprint authentication may not be performed.



When the fingerprint recognition fails

NOVUS can recognize a fingerprint regardless of a change of season or finger condition. However, the authentication rate may vary according to the external environment or fingerprint input method.

If the fingerprint authentication cannot be done smoothly, it is recommended to take the following measures.

- If the finger is smeared with water or sweat, dry off the finger and then scan the finger.
- If the finger is too dry, blow your breath on the fingertips and then scan the finger.
- If the finger has a cut, register the fingerprint of another finger.
- The initially enrolled fingerprint often may have not been scanned correctly, so enroll the fingerprint again according to 'Cautions for enrolling a fingerprint'.

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Warning & Safety Information

Safety Symbols



Warning

- When encountering this symbol in the manual, you must follow these recommendations to avoid irreparable damage to your car, system or connected devices or to avoid accidents with injuries or death.

IC Information

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The antenna(s) used for this device must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

FCC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC notification to users

This equipment has been tested and found to comply with the limits for a CLASS B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference, the user is encouraged to try to correct the interference by consulting with a dealer or an experienced technician for technical assistance.

Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.

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BIOMETRICS & SECURITY

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